

Cross (Gas. C.)

AN ESSAY

ON

SCARLATINA.

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It would answer no practical purpose to attempt to trace the early history of Scarlatina, obscured, if not lost, in the thick mists of centuries. We know that for ages it was confounded with measles, and perhaps it was also with other eruptive diseases. This is the more probable, as the researches of Frank have satisfied him of the existence of traces of it in the writings of the ancient Greeks and Romans.

Under the name of *Rosalia* or *Rossania*, a brief, but clear account of Scarlatina was published by Ingrassias, in the year 1553. In 1778, the monograph of Coyttar, entitled *Febris purpura epidemicalis et Contagiosa*, which is considered the most ancient separate treatise on the subject, made its appearance. Since that time Sennert, Huxham, Fothergill, Storck, Plenciz, Withering and more recently Armstrong, Hamilton, and a multitude of others, have given the public original observations on Scarlatina. Within a few years its anatomical lesions have been more studied than formerly, and this has led to a more rational and successful practice.

Scarlet fever has been very injudiciously considered to consist of three species, i. e., *Scarlatina Simplex*, *Anginosa* and *Maligna*. The correctness of this division is more than questionable, not only because it is not deduced from pathology, but because it erects into a distinct *entity* a mere symptom or rather complication, and into another the disease, when

it exists under its most aggravated form. Moreover, it exposes the practitioner to the risk of confounding other affections with scarlatina, for every malignant sore-throat is not malignant scarlatina.

The disease of which we are treating in this article, is a constitutional affection, consisting in a specific inflammation of the skin, generally of a scarlet complexion, though sometimes of a dark red or purple colour and generally abundant and manifest, though sometimes so very faint as to be invisible to the naked eye, generally spreading all over the surface of the body, though sometimes more partial and always abounding most in particular parts. This is scarlatina, and more than this, according to our observation, does not necessarily belong to the disease.

Why is the epithet *Anginosa* added to the term *Scarlatina*? Because the affection of the throat is considered by some an essential element of the disease. This is a great mistake; for although it is very frequent, it is certainly not of invariable occurrence. There is not between the scarlatina and *anginosa* a strict and uniform alliance. We may have the former without the latter, and vice versa. There is no theoretical or practical correctness in the epithet *maligna*. It merely designates a very high degree of intensity in those symptoms, that are observed in the milder cases of the disease, and with as much propriety might the more aggravated examples of every other disease, be considered fundamentally different from the milder and more common forms under which they are exhibited. Besides it has an unfavorable practical tendency, as it evidently implies the existence of a morbid principle, necessarily hostile to human life; and this is well calculated to lead to the adoption of a practice, not adapted to the real nature of the disease.

A capital error has been committed by physicians in not making a proper distinction between the primary and fundamental lesion, of which scarlatina consists and the secondary lesions which convert it from a simple into a complex affection. Considering the latter as in some degree essential and

elementary, suitable efforts have not always been made to prevent their supervention. Generally, this can be done without much difficulty, though in the conduct of physicians we do not often see efforts steadily made to achieve it, because the majority consider it not only difficult, but impracticable. This very often renders a mild scarlatina, malignant.

Scarlatina uncomplicated with secondary lesions is a mild and manageable affection. Few diseases are more medicable. Nor indeed does it always require medical treatment; and sometimes even, we have reason to believe, it passes through the system without becoming an object of attention. Though this is true, and though we consider scarlatina necessarily and strictly a disease of the skin, it is also true that few complaints have so strong a tendency to extend to and involve other parts. The first intimation we have of its ceasing to be simple and of its becoming complex, is seen in the congestion and subsequent inflammation of the mucous membrane of the air-passages. These lesions exist in very various degrees and constitute the different degrees of gravity met with in scarlatina. From having been a disease causing no apprehension, it has now become one, not only formidable but often dangerous in its character.

We have said that the anginose affection observed in scarlatina is only a secondary lesion. There is at least one class of pathologists who will demur to this assertion, for they contend that it is invariably present and is consequently an essential element. By them, however, the importance of a prominent, frequent and often dangerous complication is certainly magnified. It is unquestionably erroneous to alledge that it is uniformly present: in very mild cases our attention has been particularly directed to this feature; we have in several instances seen obvious, but slight and scattering efflorescence, without any soreness of the throat; and in some of these there was undue redness but no pain or other indication of inflammation. Nor is the result of our experience peculiar or independent. That such is the fact, satisfactory concurrent testimony may be found in the writings of Sydenham,

Dower, Gorter, Junker, Plenciz, Cullen and Corvisart. In his *Traité d'Accouchment, etc.*, Gardien says, and judging from the extent of his experience, his testimony is to be relied on, *J'ai eu occasion de voir la fièvre scarlatine exempt de toute affection de la gorge.*" When M. Billard remarks in his *Traité des Maladies des Enfants, etc.*, that "*L'angine est, de toutes les complications, la plus fréquente et la plus funeste,*" he distinctly recognizes the secondary character of the throat affection. In his *Practice of Physic*, Dr. Dewees says that *Scarlatina Simplex* is "the simple constitutional disease without any morbid affection of the throat." Dr. Urwin in his *Theoretical and Practical Medicine* says, in simple scarlet fever there is "no accompanying cynanche." Testimony of the same character and tendency might be very much increased, but this is doubtless sufficient to establish the fact that, although the anginose affection may be very common, it is not invariably present, and that consequently it is not an essential and elementary lesion.

Is the cutaneous inflammation the fundamental pathological condition in scarlatina? To this question we respond in the affirmative, though there are those who deny it, and consider the angina as the primary lesion. Others of a more compromising disposition, having a too strict regard to the order in which the scarlatina and anginosa succeed each other, and seeing that sometimes the former and sometimes the latter has precedence, consider the efflorescence and the throat affection as occasionally the principal element. There are those who consider that it is neither the eruption nor even the desquamation which characterizes scarlatina, but the fever that is alone essential. Such reasoning is false, if not unintelligible, and such as sound pathology will repudiate as mere speculation.

When we analyze the phenomena characteristic of scarlatina we shall find but little reason to consider the anginose affection, in preference to the cutaneous efflorescence, as the essential element. This analysis will make it appear that scarlatina is a genus in the order cutaneous phlegmasiæ and should be nosologically arranged with measles, small-pox, etc.

The efflorescence in scarlet fever, like the eruption in other exanthematous affections is preceded by all the phenomena characteristic of the fever that precedes the eruption of measles, small-pox, etc. Nor are there stronger reasons for regarding the eruption in the former as dependent on the precursory fever than in regard to the latter: an opinion which I believe is entertained by no one. In those exanthematous affections denominated primitive, there are three distinct periods; i. e. incubation, eruption and desquamation. This is precisely what is observed in scarlatina. One attack of either of the former usually protects the system from further molestation and this is commonly the case in regard to the latter. In some peculiar circumstances, however, the system is even obnoxious to second seizures in both the former and the latter. Small-pox and measles are decidedly contagious; and in Europe this is almost universally believed to be the case in scarlatina. This is very generally denied by American practitioners, but with a precipitancy, I am persuaded, more the offspring of system than of science. An impartial consideration, however, of all the facts in reference to this point will at least hold the judicious and practical in a state of indecision.

In defence of the opinion that maintains the anginose affection to be the essential lesion, it may be alledged that epidemics have prevailed in which it was observed, that the affection of the throat preceded that of the skin. A little consideration will teach us that this argument is entitled to no decisive weight. If the order in which those phenomena appear is believed to throw any light on the subject under discussion, and if it is admitted that when the angina appears first, the eruption is symptomatic of it, of what, I ask, is the latter symptomatic in those cases in which it proceeds the former? In some instances, moreover, there is no anginose affection at all: of what I ask again is it then symptomatic? If, because the anginosa in some cases precedes the scarlatina, the former is to be regarded as the cause of the latter, and that when the latter appears it is considered as nothing more than

a secondary affection or a complication, then for the same reason measles should be considered a catarrhal affection complicated with cutaneous inflammation, for the catarrhal uniformly precede the eruptive phenomena. Indeed there would be more propriety in denominating measles morbillious catarrh, for catarrh is never absent in measles, than in considering the angina essential and the scarlatina a secondary affection; for the former is sometimes, as we have seen, altogether wanting.

That the angina is not the essential pathological element in scarlet fever, and also that it is a lesion consecutive of a specific disease is further proved by the manifest difference observed between common tonsillitis and the throat affection under consideration. The former may repeatedly occur in the same individual, while the latter rarely attacks more than once and thus far corresponds with the other specific skin diseases. This resemblance is made the more striking when we reflect that the latter is uniformly accompanied or followed by cutaneous phenomena, while this is never observed, except accidentally, in the former. Now if, in fact, the throat affection is the essential lesion in scarlet fever, why do we find the eruptive phenomena uniformly absent in tonsillitis? In all those diseases, however, in which the inflammatory lesion of the skin is considered primary and essential, we very generally discover that the throat is effected. Anginose phenomena are always seen in small-pox and measles, while it is very common in other cutaneous affections.

The priority and essentiality of the cutaneous lesion in scarlatina, for which we contend, may be denied on the ground that the efflorescence is not always present. In this allegation there is both bad observation and bad reasoning. This argument derives its force from the fact that every tonsillitis that occurs during the prevalency of an epidemic scarlet fever, is precipitately concluded to be a case of that disease. Than this, no mode of reasoning can be more unsound or unphilosophical. For the same reason every catarrh that occurs during an epidemy of measles, should be considered

morbillious, or every hepatitis that occurs during summer or autumn in a malarious district, bilious fever.

Is it true, however, that the cutaneous inflammation does not exist in every instance in which the naked eye cannot detect the efflorescence. The eruption may be faint, indistinct, or it may be even invisible and yet have a real bona fide existence. The microscope in many cases will render obvious a fine punctuated redness of the surface, when the naked eye can detect no discoloration. Even when this precaution is not taken to verify the presence of cutaneous inflammation, there is a morbid phenomenon, which, in all cases of real scarlatina will remove all doubt. It is admitted even by those who believe that scarlet fever may exist without the efflorescence that, in such cases, there is always an itching of the skin and that afterwards, towards the close of the disease as regular a desquamation takes place as when the eruption is obvious. This is stated to be the fact by Huxham, Fothergill, and several other more recent writers, while proofs of it have been observed in the sphere of our personal experience.

In regard to the opinion, which will not allow either the scarlatina or angina to be characteristic of scarlet fever, but the fever exclusively, it is sufficient to say that, without cutaneous inflammation, it is impossible to have scarlatina; and that, if there are no other phenomena than those characteristic of the state of the system called fever, there is nothing specific in it, and that, it cannot consequently be the disease under consideration. It is just as impossible to have scarlatina without cutaneous inflammation as to have small-pox without pustules, and that the chills, increased heat of the body, acceleration of the pulse, vomiting, and affection of the throat are no more characteristic of either of those diseases, than pain in the loins, difficulty in making water, and itching of the glans penis, indicate certainly the presence of a calculus in the bladder.

**SYMPTOMS OF SCARLATINA.**—In giving an account of the symptoms we shall speak of those that mark the progress of simple scarlatina, and afterwards briefly of those character-

istic of its various complications. The earliest observable signs of disease are languor, debility, general uneasiness and nausea, with slight sensations of cold, which are soon followed by cutaneous heat and considerable thirst. These are the symptoms which commonly precede the eruption and with them are now associated retching, vomiting and sneezing.— They are observed early in the morning, but as the day advances they increase in intensity. Before the efflorescence makes its appearance the pulse is observed to be full, frequent and vibratory. We say vibratory, without being able to use a term more accurately descriptive of the peculiar sensation imparted to the finger by the column of blood as it passes through the artery. Indeed, the pulse is so peculiar, that we have often been able, merely by its examination to recognize the nature of the disease before there was any indication of cutaneous inflammation. The tongue is generally covered with a whitish coat, while its edges and points are red, and, in some instances, the whole upper surface presents a fiery red appearance. This, however, is rare, except when there is an anginose complication and then the organ is deprived of its epithelium.

The second or the third day after the invasion of this disease, and the sixth or seventh, generally speaking, after exposure to its cause, whatever that may be, the face begins to swell; small spots that are little, if at all, elevated above the surface of the skin, at first of a pale and afterwards of a deep red colour, separated by interspaces of the natural hue, appear in great numbers upon the face, neck and breast. In the course of twenty-four hours these red spots extend over the whole surface of the body, and are seen, also in some instances, on the lips, tongue, palate and pharynx. The interspaces just referred to, after the lapse of twenty-four hours more, are obliterated and are replaced by large punctuated patches with irregularly indented edges. The skin which is of a higher temperature than in the other exanthematous affections is tense, dry and sensitive when touched. Its surface which, in general, is smooth, is now rough and feels in

some places particularly, at the external and posterior parts of the arms and thighs, like goose skin. The feet and hands, parts where the redness is commonly very intense, are swelled, stiff and painful. In the groins, upon the nates and in the folds of the joints the eruption is also very intense and perhaps more persistent than upon other parts of the body.

On the fifth or sixth day the efflorescence begins to decline and consequently becomes gradually more and more indistinct. In its declension it recedes from the different parts of the body in the order or succession in which they were invaded. The swelling of the face subsides and the colourless interspaces which, when the eruption first appeared, separated the patches of efflorescence and were afterwards obliterated, return and increase in size, while the scarlet eruption itself, becomes less and less intense. By the seventh day the efflorescence no longer retains its characteristic features. So early as the fifth day much itching of the skin is often experienced and by the eighth and ninth large portions of the epidermis peel off from the hands, fingers, feet and other parts of the body. In some cases the exfoliation is so complete that the epidermis parts with the hand like a glove, and Dehaen has seen even the nails detached with the cuticle.

When scarlatina is to be complicated with congestion and inflammation of the air passages, the precursory symptoms exhibit more intensity than those that mark the first stage of the simple disease. Very frequently, from the invasion of this affection, the muscles of the neck appear stiff, as is evinced by the increased difficulty the patient experiences in moving the lower jaw. On the second or third day the pharynx is redder than usual and appears to be congested or inflamed. Deglutition is more or less difficult and is accompanied with pain. With these symptoms of incipient complication there is hoarseness, cough, difficult respiration and when the stethoscope is applied to the chest, mucous rattles are audible. The tonsils inflame and swell and in a very short time the mucous membrane of the mouth and pharynx is observed

to be covered with a thick, tenacious, pultaceous matter which, is sometimes of a grey or yellow color, and sometimes it is white and caseous. This preternatural lining of the parts to which we have referred, may be wholly and without much difficulty detached and removed, but this answers no good purpose, for in the course of twenty-four hours it is again renewed. This exudation extends not only over the lateral parts of the pharynx, but even in the œsophagus; according, however, to M. Rayez, as he states in the *Dictionnaire de Médecine et de Chirurgie Pratiques*, it has not been observed to spread into the larynx or trachea. That the inflammation, of which it is a consequence, extends into the bronchial tubes, is positively proved by the symptoms already and those hereafter to be mentioned, and also occasionally into the Eustachian tube, as is evinced by the deafness which has been sometimes observed.

The pultaceous matter observed very often in different parts of the throat, has been generally considered escars which conceal subjacent ulcers. This, however, is an error: and it will be the more easily committed should the tonsils be irregularly or unequally tumefied and especially should they be disposed to bleed. When the surface of the tonsils is thus rendered very uneven and, at the same time, pour out blood it has very much the aspect of being in a state of ulceration, and this deception will be the more complete should the pultaceous matter be brown or black as it sometimes is. If this pellicular covering is removed, and this may be done without difficulty, and the subjacent mucous membrane be examined with attention after the throat has been thoroughly cleansed, there will be detected no loss of substance—no sign whatever of ulceration. According to MM. Brattoneau and Guersent, the mucous surface from which this pellicular exudation is removed seldom exhibits any morbid appearance, save that of extreme vascularity. Not even in what has been called scarlatina maligna, according to the pathological researches of the French physicians, has the integrity of the mucous tissue been detected to be at all injured. What were formerly, therefore,

supposed to be sloughs of the mucous membrane, have been proved to be pellicular membranes or exudations, and Doctor Tweedie says that, "When these are tinged with blood, and especially when at the same time blood exudes from the lips and gums, their dark or almost black appearance and intolerable fetor, have frequently caused them to be mistaken for sloughs; the surface, however, from which they are detached is perfectly entire, the mucous membrane, although of a dark red or livid color, is perhaps not even softened, nor is there any peculiar odour of gangrene.

When the air-passages are invaded, the febrile excitement is greater than when the disease is confined to the skin. The temperature of the body is frequently as high as from  $104^{\circ}$  to  $108^{\circ}$ . In the former the efflorescence does not come out so early, nor does it pervade the surface so extensively as in the latter. In its progress it is not so regular, for a short time after it has appeared, sometimes even the very day, it will disappear and return again at a subsequent period of the disease. It is also more persistent, while the desquamation is not so regular as when there is no complication.

Sometimes the congestion and inflammation of the air-passages are exceedingly intense. The quantity of secretion poured into the bronchial tubes is such as materially to prevent the free exposure of the blood to the action of the air. The eruption is therefore usually faint, excepting in a few irregular patches, and the whole of it soon assumes a dark or livid red color. The eyes are dull and suffused with redness, and the inside of the eyelids dark coloured; the cheeks exhibit a dark-red flush or are livid. The fauces and throat are of a dark red or rather livid color and are incrustated or covered with a brown or black exudation. The breath is exceedingly offensive, while the discharges from the mouth are viscid or acrid. The inside of the labiæ pudendi of girls, and of the prepuce of boys have the same color, with the inside of the cheeks and lips.

The bronchial mucous membrane being exceedingly congested and the blood passing through the lungs with much difficul-

ty, the vessels of the brain are apt to become overloaded with imperfectly arterialized blood and we then see manifested low muttering delirium, convulsions and coma. The same pathological state will lead to hepatic congestion and then we have the various evidences of derangement of the liver. From this cause the mucous membrane of the stomach becomes congested and this is the cause of nausea, retching and vomiting, and at a latter period the lining membrane of the bowels also becomes the seat of a similar lesion and it results in severe purging, which rarely fails to prove fatal.

APPEARANCES IN DISSECTION.—M. Rayer, who appears to have studied the morbid anatomy of this disease with great zeal. says in the article already quoted, that when death happened on the second day from the invasion, he found only a slight redness of the bronchial mucous membrane, but when it did not take place until the third or fourth day the mucous membrane of the pharynx, trachea and bronchial tubes presented a uniform red appearance; the brain was congested, and the pia mater injected with blood. In the second stage he found nearly the same lesions under a more aggravated form. He sometimes found a deposition of pus in the tonsils and in the submucous cellular tissue of the upper part of the larynx.—The mucous membrane of the trachea and bronchial tubes was of a deep red or of a uniform livid hue; the small vessels of the cerebral and rachidean pia mater were in a state of congestion and in some places appeared to be ecchymosed; while the lateral ventricles contained more or less serosity, In some instances, however, he was unable to discover any lesion sufficient to explain the cerebral symptoms that were observed during life. In an epidemic scarlet fever, which, in 1825, prevailed in the *Maison d'Accouchemens* at Paris and of which a description was given by M. Senn, inflammation of the air-passages existed in all the women that died of the disease.

“In the dissections which have fallen within my observation,” says Dr. Mackintosh in his *Practice of Physic*, “the inflammation and ulceration in the throat have not appeared so

extensive and important as had been imagined before death. The most constant diseased appearances have existed in the air-passages, presenting inflammation in its different stages; viz: vascularity of the mucous membrane, thickening and occasionally ulceration; in two cases I have seen the epiglottis nearly all destroyed by ulceration; and also effusion of thick, tenacious matter; filling up the air-passages to the bifurcation, and often lining the trachea." Dr. Tweedie remarks that "in the fatal cases, the appearances on dissection were not always sufficient to explain the cause of death, which, in such instances seemed more the result of a specific poison operating on the brain and mucous membranes. In some, the brain showed marks of vascularity and effusion; in others the mucous membrane of the larynx, near the arytenoid cartilages, was destroyed by ulcerations and the membrane of the trachea and bronchi was in several excessively inflamed."

The reader will pardon the length of the above quotations, when he reflects, how very important it is to be accurately informed of the character of those lesions from which danger is apprehended, and which are the cause of death. This we conceived would be the more readily done, when it is understood that our desire is more particularly to illustrate and direct attention to a secondary lesion, which, though previously noticed as the above quotations fully prove, appears not to have been studied in its bearings on the treatment of the disease. So long ago as the autumn of 1828, our attention was directed to the disordered state of the respiratory function in scarlatina. We were fully satisfied from an observation of the phenomena during life, that death was owing to some lesion of the respiratory organs. Though death was a very common termination of the disease, post mortem examinations were not often permitted to be made. The few, however, that were allowed were with alacrity performed.

Nothing more than what has been already referred to, was discovered in the throat. Indeed we did not expect to find there the cause of death, for we had repeatedly seen that result follow without any such amount of swelling of the ton-

sils as should occasion apprehension or be a ground of serious alarm. In those cases of scarlatina, which are to terminate fatally, the eruption is observed to be of a deep red color and is interspersed with large livid spots. This is conclusive proof that the action of the air on the blood is imperfect—that there is some obstruction to the entrance of the air into the pulmonary vesicles. That this obstruction does not always, though it may sometimes exist in the throat we have the most satisfactory proof. “There is,” says Dr. Currie in his *Medical Reports*, “a species of scarlatina, to which the name of *Purpurata* ought rather to be given, for the efflorescence is of a purple, not of a scarlet hue; in which, though the throat be deeply and extensively ulcerated, *the pain and difficulty of swallowing are comparatively small, for the passage is kept open*, and the sensibility of the part destroyed by the progress of gangrene.” In his work on scarlet fever, Dr. Armstrong remarks that “The affection of the throat, abstractly considered, is perhaps rarely the cause of death.” Of four mortal cases there was in one only “an appearance of gangrene in the throat; but in the other three, which ended on the second day, *the traces of disorder were comparatively slight in that situation.*”

Satisfied, therefore, that there must be some other obstacle, to the introduction of atmospheric air into the pulmonary vesicles than the enlargement of the tonsils and swelling of the throat, we prosecuted our researches into the trachea and bronchi. In the few dissections made by us we invariably found the living membrane of the trachea and bronchial tubes in a morbid state. It appeared to be variously congested; in some places the redness was comparatively slight, and in others very intense. In the bronchial tubes especially there was accumulated such an amount of serous and mucous secretion as must have constituted a serious obstruction to the complete arterialization of the blood. So soon as this observation was made, we determined, in future, to adopt such measures if possible, as would keep the respiratory passages perfectly clear of all obstruction; and with what success, the reader will be able to judge, when we come to speak of the treatment.

The other traces of disease observed, were in the brain, lungs, liver, and the mucous membrane of the stomach and bowels, and generally consisted in congestion and effusion, the invariable effect of that lesion. Of the congestion of the organs just mentioned, it is needless to speak in detail, for their lesions are rather ternary than secondary or primary.

It is in the existence of secondary and ternary lesions, however, that the danger in scarlatina consists; and of this I am so satisfied that I am almost persuaded to consider it with Sydenham, "but a disease in name, only dangerous from the too great officiousness of the physician." Though the sentiment just expressed may be rather strong, it is doubtless true that it only becomes dangerous in the way already mentioned. In the *Dictionnaire des Sciences Medicales*, it is said by M. Janin de Saint-Just that "scarlatina is not a dangerous disease and that it becomes so only when complicated with very extensive internal inflammation." M. Boisseau in his *Nosographie Organique*, informs us that "when inflammation of the throat is associated with that of all those organs at once, numerous symptoms of bad augury are developed; then only life is endangered, for scarlatina without visceral inflammation exposes to no peril."

**PATHOLOGY.**—From what has been said it distinctly appears that it is not so much the scarlatina which should merit the attention of the physician, as the secondary and ternary lesion that are so apt to occur and which expose life to so much peril. Not only the organs, therefore, in which these take place, but the order or succession in which they usually occur, should be closely studied.

Of the congested state of the bronchial mucous membrane in Scarlatina, pathological anatomy has furnished us the most indubitable proof. To the existence of this lesion the symptoms during life point in the most explicit manner. The effect of congestion in any part of the system is to increase the natural secretion of the part. If congestion should pass into inflammation, the natural secretion is no longer seen, but certain effusions (serum, coagulable lymph and pus) take place

which are denominated effects of inflammation. If the natural secretions of the bronchial tubes are much increased we find it disclosed by more or less of difficulty in respiration which is also accelerated and by the mucous râles that are heard when the ear or the stethoscope is applied to the chest. In children particularly, in whom scarlatina is generally observed, a very moderate increase of the secretions of the bronchial tubes will not only embarrass respiration, but will be the source of very general disturbance throughout the system. This is mainly owing to their unwillingness or inability to expectorate.

If such precautions are not taken as will speedily remove the secretions as they are poured into the bronchial tubes, it is very certain that they will soon constitute a serious obstruction to the free admission of atmospheric air into the air-cells. The inevitable consequence of this will be, the blood in its passage through the lungs will not be completely converted from venous into arterial. When once the congestion of the mucous lining of the air-passages has gone so far as to produce such an obstacle to the entrance of air into the pulmonary vesicles, as will diminish even in a slight degree, the change which the blood should experience in its passage through the lungs, a deleterious impression will be made on the whole system and the symptoms will immediately assume more or less of malignancy. The fever from having been distinctly inflammatory in its character, will become decidedly typhoid and patients in general will sink with great rapidity into a hopeless state of debility, under the depressing influence of an imperfectly arterialized blood. That this should result from the pathological condition of the bronchial mucous membrane to which reference has been made, must be perfectly apparent to those the least acquainted with the physiological relations of the function of respiration with the rest of the system. In no other febrile affection do we observe so sudden and complete a transition from high excitement to absolute prostration as is frequently seen in scarlatina and this can only be rendered intelligible by referring it to the interruption or great disorder

of some leading vital function. Although inflammatory lesions of the liver, stomach, bowels and brain are often observed as consecutive affections in scarlatina, they furnish no adequate clue to the explanation of this sudden and alarming change in the character of the symptoms. By the attentive practitioner, who studies closely the order in which the symptoms are developed, it will moreover be seen that those characteristic of cerebral, gastric, enteric or hepatic disorder are seldom present, in any considerable degree, until after the indications of respiratory embarrassment have become obvious and pressing.

As it cannot be denied that congestion of the bronchial mucous membrane may cause such an abundant secretion into the air passages as materially to obstruct the entrance of air into the pulmonary vesicles, and as this must have the effect to prevent the complete arterialization of the blood in its passage through the lungs, and as strength, activity and integrity of function depend on the character of the blood sent to the organs, debility must be the result of the bronchial lesion. As expectoration is performed by children, even in the most favorable circumstances very imperfectly,—as strength is absolutely necessary to the perfection of that process even in adults, it is certain that the debility which unavoidably results from the bronchial lesion, must render expectoration momentarily more and more imperfect. Secretion into the respiratory passages accumulates in a reduplicating ratio—breathing becomes more and more difficult—the action of the air becomes less and less on the blood—the blood experiences scarcely any change in its passage through the lungs and consequently struggles through them slowly and with much difficulty—every organ in the body suffers from the benumbing influence of blood but little better than venous—overwhelming congestions of the different viscera take place and life is rapidly extinguished. This view of scarlatina is suggested by the phenomena observed during life—it is strengthened by that mode of medication we have found to be perfectly successful in counteracting the tendency to the formation of secondary and tertiary lesions, and it is confirmed by the evidences of disease found on dissection after death.

As has been remarked, the tendency of the cutaneous inflammation to extend to the mucous membrane lining the air-passages is very great, but when scarlatina continues simple there is no other evidence of this than slight redness of the throat, and this in but few instances. There is then some acceleration of the circulation and some febrile excitement of the system in general, but no congestion of the bronchial mucous membrane—no increase of secretion and consequently no disturbance in the respiratory function. With no more striking evidence of dangerous disease than this, the majority of cases of scarlatina, if properly treated, or if indeed not treated at all, would pass regularly through its stages. This, however, does not always happen; either because the treatment adopted has been irrational, or the tendency to congestion of the bronchial mucous membrane could not be completely counteracted. Secretion is now increased and mucus accumulates to a greater or less extent in the air-passages according to circumstances. Respiration is now hurried and laborious, and is accompanied by audible wheezing rattles, which the judicious physician will consider a certain intimation of approaching danger. If the bronchial congestion is not permitted to become intense, the eruption upon the surface will be abundant and of the characteristic scarlet complexion; but should it become severe, the accumulation of secretion in the bronchial tubes will rapidly increase, and it will become more faint, entirely disappear, or assume a darker appearance. When this is the case, the blood circulates through the lungs with great difficulty, on which account they are very liable to become congested and this very much promotes the occurrence of the same lesion in other organs. While the respiratory passages were comparatively free, the fluids took a centrifugal direction but now becoming every moment more and more obstructed, it is centripetal. The blood thus recoiling from the surface to the centre, necessarily has the effect to render the efflorescence which was before palpable, less obvious, if it does not cause it to disappear entirely. The sensorial power of the brain is diminished—the energy of the whole nervous system is im-

paired, which, reacting upon the heart, weakens that organ as well as the circulation.

In all of the exanthemata, intense visceral congestion or inflammation is sufficient to prevent the full appearance of the eruption and also to cause its disappearance after it has once been manifested. This is an important pathological and practical fact, and should be kept strictly in view by the physician. He is liable to be led into error by false appearances. When the eruption has failed to come out or has receded, he is apt to conclude that it is owing to debility and, under this impression, stimuli are employed and death, in almost every instance, is the result. Visceral congestion or inflammation, and not debility, is uniformly the cause of the phenomenon to which we have referred and stimulants, so far from promoting the eruption, exasperates the cause and renders its appearance impossible.

When the congestion of the mucous membrane of the bronchi and consequent obstruction from accumulated secretion is not sufficient to cause the retrocession of the eruption, it is frequently still sufficient to produce such changes in the color of the efflorescence as to prove that the blood, in circulating through the capillaries of the lungs, has not been completely arterialized. Indeed, it may be stated that the colour of the eruption is almost exclusively dependent on the degree to which the bronchial mucous membrane is congested. A free scarlet eruption with high febrile excitement, should be regarded as an indication, that the respiratory passages are free and of course as a good omen, for generally it affords the patient considerable relief, when he may have experienced much oppression before. When the respiration is hurried and difficult, while mucous rales are distinctly audible, the eruption, from being of a scarlet colour, becomes of a dusky or dark crimson complexion, and, if the oppression continues to increase, of a purple or livid aspect.

The changes which the efflorescence experiences, sufficiently illustrate the condition of the respiratory passages, and when we reflect on the importance of the lungs to animal life, we

cannot be at a loss to understand how that condition, if suffered to continue and increase, should produce congestion of the brain, liver, and mucous membrane of the alimentary canal. Though the blood may not be completely arterialized in its passage through the lungs, it is still propelled into the arteries; and when it reaches the brain, it produces delirium, convulsions and ultimately insensibility. In other parts, such blood not being sufficient to sustain the irritability of the organs, their functions languish and an overwhelming debility seizes the whole system. When, however, in scarlatina the brain becomes once involved, difficulty of breathing rapidly increases, not so much on account of the increase in the mechanical obstruction to the access of air to the blood, as because the sensation in the lungs upon which the act of inspiration depends, becomes blunted and the lungs are consequently feebly expanded, and but little air comparatively descends into the pulmonary vesicles. When the nervous system has been impressed by imperfectly arterIALIZED blood, its deleterious influence is exerted upon the capillaries of the whole system, but those of the lungs especially. The blood passes through them very slowly and extensive congestions are then inevitably formed in the lungs, liver and the mucous membrane of the alimentary canal. The order in which these lesions take place appears from the observations we have made on the subject to be the following: 1st. Congestion of the bronchial mucous membrane, from extension of the cutaneous inflammation; 2d. Congestion of the bronchial mucous membrane causes that of the brain; 3rd. Congestion of the brain reacting on the lungs causes that of the pulmonary parenchyma; 4th. Congestion of the lungs causes that of the liver; and lastly, congestion of the liver causes that of the gastro-enteric mucous membrane.

*Etiology.*—It appears to be extremely difficult to determine, with precision, the cause or causes of *Scarlatina*. Whether a more specific reference of it can be made, than to a peculiar constitution of the atmosphere, which is, doubtless, sufficiently vague and unsatisfactory, is exceedingly questionable.

Nor is it probable, that its origin in contagion will be soon, with certainty, established. When, therefore, we examine the ground on which the allegation is made, we cannot but be surprised at the unanimity and confidence with which European physicians pronounce it to be contagious. Nor is our surprise less at finding American practitioners so universally sceptical on the same subject.

By European writers it is not only considered communicable from person to person, but that it may, after the lapse of a year, be conveyed in clothes that have been exposed to the contagious effluvia. In proof of this, the coat of Hilderbrandt has been so often quoted in discussions on the origin of scarlatina that it has become quite as famous as the Black Hole of Calcutta in discussions on the cause of typhus. Hilderbrandt wore his black coat during an epidemic scarlatina, and after hanging a whole year in his wardrobe, he wore it from Vienna into Podolia where it communicated the disease, which in consequence prevailed to a great extent, and where previous to his arrival, it was entirely unknown. In this way M. Guersent, one of the physicians of the *Hospital des Enfants Maladies*, accounts in the *Dictionnaire de Medicine*, for the introduction of the disease into his own family. It is stated by M. Sabatier in the *Bulletin Général de Thérapeutique* that a lady visited an acquaintance that was labouring under Scarlatina. In a short time she was attacked with the same disease; from her it was communicated to her children, and from them to their nurse. M. Guersent speaks of a family of four children one of whom was seized with scarlatina; as soon as this was discovered it was completely separated from the other three. Three weeks afterwards, the disease having terminated, he took seven or eight baths and was restored to the society of his brothers. These, in their turn, were also, notwithstanding the precautions that had been used, attacked by the disease.

Though we have paid much attention to the subject under consideration, we have not been able to determine whether or not scarlatina is contagious. The facts we have had an opportunity of observing are so conflicting in their nature that

we have not been able to draw from them any certain conclusion. When it has entered a family, it has generally attacked every individual within the years of childhood with a certainty that we have never witnessed in any disease confessedly of atmospheric origin. In several instances, on the contrary, we have seen it attack one or two of the members of a family, while the others, though no precautions were taken to prevent intercourse of the well with the sick, entirely escaped. Generally we have been able to trace it to intercourse with those laboring under the disease, although occasionally we have seen it break out in families, without any circumstance occurring to prove that contagion was its cause. If it appear probable, however, in a subsequent part of this essay that scarlatina may attack three weeks after exposure and be derived from individuals who have ceased to exhibit any traces of it, the reader will not fail to perceive how difficult, not to say impossible, it would be to determine whether or not those cases which appear to arise independently of intercourse with the sick are owing to contagion.

In regard to inoculation which would be an argumentum *crisis* in favor of its contagious nature, it does not appear that we have any thing very conclusive. It is said that M. Petit-Randal experimented on this subject, but failed in every attempt to communicate scarlatina by inoculation. We are told that Stoll was more successful and it is asserted by M. Rostan in his *Medicine Clinique* that it is communicable by inoculation. Upon what facts either of these statements are made, we are left entirely to conjecture; for nothing clear or explicit is said on the subject. Not only does Dr. J. Frank consider scarlatina contagious but he alledges that it may be communicated from man to the dog.

The chief argument that has been urged against the contagiousness of scarlatina, consists in the fact to which we have already referred, that it sometimes attacks one of a number of children, while the rest escape. Such instances constitute the exception and not the general rule, and is rather in favour than against its contagiousness. Besides, the same thing has

happened in regard to small-pox and measles, though perhaps not near so frequently; and there is no reasonable doubt as to the way in which they are communicated from one individual to another. Whether or not the propagation of scarlatina is to be explained by referring it to contagion, of one fact we are assured, that the conduct of many of those physicians who deny it to be contagious is very inconsistent with their professions. We have repeatedly seen anti-contagionists use all the precautions, to prevent intercourse between their families and those who laboured under the disease, that were considered judicious and proper by those who thought differently.

All persons are equally liable to be attacked by scarlatina. Women are more susceptible than men—children than infants. It is decidedly a disease of childhood, though it may attack at any period of life. M. Billard is of opinion that it is more common among children and adults than amongst infants at the breast. It often, he remarks, prevails at the *Hospital des Enfants Malades*, while it is rarely ever seen at the *Hospital des Enfants Trouvés*. In the latter hospital he saw in the year 1826, three children from twelve to fifteen months of age, attacked with scarlatina, while not one of those who were younger suffered from it. Several years before this remark was made by M. Baron, and of its correctness M. Billard says he is satisfied from the fact that nearly all the epidemics of scarlatina that have been observed, have prevailed amongst the children of hospitals or boarding schools.

That infants at the breast suffer less frequently from scarlatina, than more advanced children, I think altogether probable, but that they enjoy any thing like a complete exemption is at war with our experience. I witnessed it in one instance in a child only two months old, and the most violent case of six that occurred in my own family, was in an infant only eight months of age. Dr. Robertson of Georgia, speaking of scarlatina, as it prevailed in Augusta in the winter and spring of 1832-33, remarks that "several cases occurred in infants at the breast, but it was generally very mild with scarcely any fever." It is even alledged by M. Janin de Saint—Just in his

article *le Scarlatine*, in the *Dictionnaire des Sciences Medicales*, that it has attacked the fœtus in utero. In this respect, if this statement be true, it resembles small-pox.

One attack of scarlatina generally secures the system from a future invasion and in this respect resembles small-pox and measles, for an attack from either does not give perfect protection. Of two thousand cases of scarlatina, Willan saw a second attack in but a single instance. M. Rayer, who has probably seen more of this disease than even Willan, remarks in the *Dictionnaire de Med. et de Chirurgie*, that before the publication of his *Traité des Maladies de la Peau*, he had not seen a single example of a second attack in the same individual. Since that time he has seen one. Sir Gilbert Blane informs us that he knew a young lad, who had scarlatina distinctly no less than three times. I attended a young woman in what was said to be a second attack, but not having seen her in the first, cannot testify to it.

Like small-pox and measles, scarlatina prevails at all seasons, though it more frequently prevails as an epidemic during hot and wet summers than in the winter or any other period of the year. It is said that the contagion is most active in imperfectly ventilated situations or when the air is impregnated with marsh miasmata. This may probably be the case, though it should be remarked that the most extensive and fatal epidemic scarlatina I ever witnessed, occurred in a region of country by no means exposed to those diseases that result from marsh emanations.

The time that elapses between exposure and the first manifestation of scarlatina is from four to eight days generally, though occasionally it appears to be much more tardy. We have already quoted from M. Guersent, a fact proving that three weeks elapsed before the disease made its appearance. On this point, however, there is a peculiarity to which attention has been called by Dr. Maton of England. The disorder to which he refers, showed itself in a large family, and evinced all the common symptoms of a mild scarlatina; and like scarlatina, it appeared to be contagious, for every member of the

family, elder or younger, to the number of eight, received it in succession. But its singularity was the great length of interval, between the time of exposure to the attack in those who sickened nearest to each other in the order of its descent, and any sensible effect on the system; which, instead of being, as in ordinary cases of fever, six or eight days, was, upon an average, not less than twenty-one days; varying in different individuals, from seventeen to twenty-one days. This circumstance, in conjunction with one or two other signs of minor importance, inclined Dr. Maton, though he at first regarded the disease as a modification of scarlatina, to believe it a new complaint, requiring a distinct designation. Yet if we reflect how often a nearly similar retardation takes place in particular families after inoculation from either the small-pox or cow-pox, in which we have a much more definite period to calculate from, we shall rather perhaps be justified in adopting Dr. Maton's first view of the disorder, and consider it scarlatina modified by a peculiar family temperament, or some other accidental control. Measles, moreover, occasionally exhibits a like procrastination, for its appearance has been delayed as many as twenty-one days, and in the anginose variety of scarlatina it has been already remarked the eruption is always later in its appearance than in the simple form.

**TREATMENT.**—We are called to the management of few acute diseases, in regard to which there has been such a diversity of opinion, in reference to the remedies that should be employed, as in scarlatina. Many have been recommended, tried, and but few, if any, have answered expectation. They have mostly fallen into desuetude either because they were useless or prejudicial.

It is generally admitted by the most respectable writers that scarlatina is homotonous in its character: i. e. it has a prescribed course to run,—regular stages or periods through which it must pass, and before which it cannot be arrested or suddenly cut off. Not having fully recognised this feature of the disease and not having acted on the principle it inculcates

has doubtless been one of the causes why *Scarlatina* has been so alarmingly fatal. Fruitless efforts to arrest it before it had run its course has had no other effect than to interrupt its regular march, and to hasten the developement of those secondary lesions, which are the source of so much danger.

As simple *scarlatina* is not a dangerous disease, and only becomes so when connected with secondary lesions, it should be the object of the physician to prevent their developement, or if he has not been called sufficiently early to do this, or his measures have proved ineffectual, he then should aim to moderate their violence or to subdue them altogether. What is the first indication of danger in *scarlatina*? Those symptoms which prove the existence of congestion or inflammation of the mucous membrane of the air passages, and upon his ability to prevent or subdue this will depend the success of the physician in the treatment of *scarlatina*.

The object to be attained being pointed out, if we reflect on the effects of emetics, we shall see that they offer a fairer prospect of achieving it than any other class of medicines. Under certain circumstances they are amongst our most valuable expectorant medicines: they prove beneficial in expelling the morbid contents of the bronchial tubes, by the mechanical impulse they impart to the lungs and the general concussion the system receives under the process of vomiting; and by the sympathy of the lungs with the stomach the impression they make on the latter changes the action of the secreting and exhaling vessels of the pulmonary mucous membrane. In this way emesis clears the air-passages and exposes the blood to the vivifying action of the air.

During the process of vomiting, the blood is propelled with an increased momentum through the arteries and is returned to the heart with more rapidity through the veins. It is also driven from the centre to the circumference, and thus powerfully contributes to prevent and remove local determinations and congestions. The centrifugal direction given to the blood by vomiting promotes a free and abundant eruption, and in that way, protects the viscera from the danger of those lesions.

Infants suffer very much from the sputa and acrid matter, formed about the fauces, being swallowed. From the stomach they pass into the bowels and cause diarrhœa, which rapidly exhausts the strength. Emesis clears the stomach of all such offending matters and thus obviates this source of danger.

Such being the usual effects of emetics, we cannot fail to see that they must be of the greatest service in the treatment of scarlatina. This was conceded by Dr. Withering, but the majority of other writers consider them of very secondary importance. Indeed Withering himself had a very imperfect knowledge of the way in which they are useful.

It is generally agreed that emetics are most useful when given early. This is correct and they should therefore be administered on the first intimation of the existence of scarlatina. Upon strictly following this precept and actively enforcing the repetition of emetics will depend the success of the physician in warding off secondary lesions. No action can be excited that more effectually prevents congestion of the bronchial mucous membrane; this we assert with confidence for we have not failed in a single instance to keep the respiratory passages open. When we succeed in doing this, we also secure the free action of the air on the blood and thus emetics act indirectly as tonics. It is the incomplete conversion of venous into arterial blood that is the cause of debility in scarlatina, and if we render the former complete we prevent the latter. While we keep the air-passages clear by the use of emetics, we give to the blood a centrifugal direction and thus prevent, in all probability, congestion of their lining mucous membrane. If we succeed in this, we need be under no apprehension about congestion of the lungs, brain, liver, stomach or bowels or of any other untoward circumstance, as the disease will pass regularly and safely through its stages.

In the employment of emetics we are guided exclusively by the condition of the respiratory passages. If they are but slightly disordered, their repetition will not be frequently required, but if there is serious obstruction, it will be necessary to use them assiduously and often. The circumstance

which generally determines us to have recourse to emesis, is the wheezing noise that is often heard in respiration. This shews that mucus is accumulating in the air-passages and experience proves that it cannot be removed too speedily. Upon this principle we have uniformly acted, directing emesis to be excited on every recurrence of the sound just referred to, should half a dozen emetics in the twenty-four hours be required.

We cannot insist too strongly on the importance of keeping the air-passages open, for so long as we can effect this we have no danger to fear—local determinations and congestions cannot take place. The means employed will drive the blood to the surface—bring out the eruption and relieve the internal organs. To do all this, we repeat, emesis must be frequently produced, and when we say frequently, we do not mean three or four or even half a dozen emetics in the course of the disease, but as many or more in the course of twenty-four hours should the severity of the case render them necessary. Vomiting is not excited to moderate or remove an occasional symptom, but to fulfil a leading and almost an invariable indication and must, therefore, be had recourse to whenever it is present be that seldom or often.

Should there be much difficulty of breathing or tendency thereto, it will not be safe to defer very long the repetition of the emetic. The first may have had the effect to give a centrifugal direction to the fluids—the blood may be more equally diffused through the capillaries of the skin and the patient may, in consequence experience great relief, but it should be recollected that the disposition to congestion of the bronchial mucous membrane is very strong, and that if the centrifugal impulse is not kept up the blood will take a centripetal direction. Indeed, we have repeatedly seen this tendency manifested, almost as soon as the effects of an emetic had subsided. Nor should we allow it to be evinced by signs too obvious or striking, for if once the fluids begin decidedly to recoil from the skin, it will not always be found very easy to restore vigorous circulation to that organ. It should, therefore, be the object of the physician, rather to anticipate than to permit the blood to take a centripetal direction.

It will be often found that respiration is exceedingly oppressed, and it will appear almost impossible to keep the air passages clear, and should the physician be guided in the use of emetics by this circumstance, there is some reason to apprehend he may be deterred from repeating them as often as may be absolutely indispensable. The fear, if entertained, will be found idle and dangerous. There is more danger in too little than in too much vomiting. I have, in a great number of instances, given as many as from four to eight emetics in twenty-four hours, and so far from doing harm, have invariably had every reason to be satisfied with the result. To my own son, then but eight months of age, I gave no less than nineteen emetics in three days and a half, with a success, which, under the unfavourable circumstance of the case, I confess was not anticipated. Other instances in which emesis was as energetically enforced and with as good success, might be referred to.

As has been already remarked, an emetic should be exhibited on the first intimation of the existence of scarlatina and it should be repeated, according to circumstances, throughout the whole course of the disease. This should be done whether it consist in cutaneous inflammation merely or be complicated with secondary lesions. If the former, we use them to prevent the supervention of the latter, and if the latter to moderate and subdue them. There are those who condemn them and particularly Dr. Armstrong, in cases of the latter description. This, however, does not accord with our experience, for, unless there is gastro-enteric congestion or inflammation, there is no reason to fear they will prove prejudicial. The powerful centrifugal impulse they give to the blood has the effect not only to prevent the formation of but to remove local congestions. Though emetics are decidedly useful in the management of secondary lesions, they are certainly much more efficacious in preventing them. They effectually clear the air passages—secure the complete arterialization of the blood and thus prevent debility and the formation of local determinations and congestions. Recourse should,

therefore, be had at once to vomiting and we should not injudiciously waste time in the employment of the other and much less efficacious means.

The stage of the disease should not be considered an argument against the use of emetics. Respiration may be already very much oppressed—local lesions may have already formed and debility may already prevail to a considerable extent and yet we should not be deterred from their prompt and decided use. It is certain that the danger consists in the morbid state of the mucous lining of the air-passages and this every moment increasing, death must result, if it is not speedily removed. No compromise or hesitation is consequently admissible, for however much in certain debilitated states of the system, we may dread the exhausting effects of emetics, it must be risked until safer means of clearing the air-passages can be discovered. Generally this apprehension is gratuitous and unfounded, for so far from increasing, the debility is much diminished. If the emetic has the effect to remove any considerable portion of the secretions accumulated in the air-passages, the blood in circulating through the lungs will be more fully exposed to the action of the air; and from its improved condition, the system will derive strength. This change in the blood is sometimes rendered very obvious in the lighter complexion which the eruption, before dark and livid, assumes. And if even the slightest improvement in this respect is observed to follow emesis, we have the greatest encouragement to persevere, for we have every reason to believe that if sufficiently often repeated and in sufficiently rapid succession, we shall ultimately triumph. This is absolutely indispensable, for if their repetition is not strictly enforced, it is easy to lose what little ground has been gained, for in a short time the respiratory passages will be found as much obstructed and the eruption of as dark a hue as before. To a neglect of this precaution, in a great degree, we are satisfied should be ascribed the unsatisfactory results that have often followed emetics, and also, much of the vagueness with which they are spoken of by authors.

While we recommend vomiting as of the greatest efficacy in scarlatina, we would not be understood to intimate that it is of no importance by what article it is excited. On the contrary, our success will mainly depend on the selection we make. The articles that have been used are tartar emetic, *sanguinaria canadensis* and *ipecacuanha*.

The first article, just mentioned, has not only been used, but has been spoken of in terms of decided approval. The confidence which has been reposed in it is misplaced and the error thus committed is fraught with the greatest danger. Given occasionally, perhaps two or three times in the course of the disease, as is the common practice, it will not probably prove very prejudicial. From what has been said, however, this is not the way in which emetics are to be used, if we would derive much benefit from them. They are to be administered as often as the condition of the air-passages may require, and if tartar emetic is thus used, instead of preventing, it would infallibly produce exhaustion. The relaxation and the severe discharges of which it is invariably the cause, when often repeated, would prostrate without being productive of any commensurate advantage. Tartar emetic is also a powerful irritant and if given in any disease where there is a tendency to gastro-enteric congestion, it will be certain to produce it, and by its injudicious repetition gastro-enteric inflammation will result. Instead, therefore, of being useful, the disease is exasperated by the production of a secondary lesion. It is very much disposed to act on the bowels, in consequence of the irritation it excites, and thus we run the risk of producing diarrhœa. This should be strictly avoided if possible, for nothing more rapidly exhausts the strength or is a source of more danger. For these reasons and others that might be mentioned, we look upon tartar emetic as an exceedingly dangerous remedy in scarlatina and one that should never be employed. We venture thus decidedly to condemn it, notwithstanding it is in very general use and is much commended by those who confide in emetics, because we are persuaded the production of the effects just

referred to, has tended very much to impair the confidence that may be safely reposed in emesis.

*Sanguinaria Canadensis* has been much commended by Dr. Tully, but as we have no personal knowledge of its effects we will not venture to decide upon its merits, though we are not inclined to believe it will ever be substituted for *ipecacuanha*, an article which so far as we have been enabled to judge of it from personal observation, is not obnoxious to the aversion of one of the objections that have been urged against tartar emetic. From its repetition as often as was deemed necessary in the severest cases that occurred under our observation, we never had reason to consider it the cause of gastro-enteric irritation, of general exhaustion or of diarrhœa.

For the first time in the year 1832, when scarlatina prevailed to a very great extent in this county as an epidemic, I had recourse to *ipecacuanha* in the way we have already mentioned. Several times previously, however, I had seen this disease and had always treated it in accordance with the ordinary modes; but my success was any thing but satisfactory. Since my main reliance has been on *ipecacuanha*, the results of my treatment have been so very different, that I now regard the disease as in a great degree divested of its former terrors. My success, if it has not surpassed, has at least equalled that of any other physician of whom I have read or with whom I am acquainted. In the summer and autumn of 1832, when scarlatina was very prevalent in this country, I had under my care sixty-seven cases, all of which, with the exception of one recovered. The fatal case occurred in a lady about 35, years of age; she had suffered under the disease six days when I saw her for the first time, and she died early on the eighth day. When first seen her situation was considered hopeless. Since the year to which reference has been made, I have seen about the same number of cases, and have been uniformly successful, so that of about one hundred and twenty cases, but one proved fatal. My confidence in *ipecacuanha* was made known to a number of physicians, several of whom made a faithful trial of it, in the way recommended, and

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**P. 33-40 omitted in numbering**

**P. 41-48 repeated in numbering**



although their success was not so complete as that realized by myself, it was sufficiently satisfactory to induce them to rely upon it in future. Professor A. G. Smith in particular, who, in the city of Cincinnati, enjoyed a large practice, made trial of it in a great many cases and in all, but one, with entire success. His fatal case occurred in a weak scrofulous child that was very severely attacked, and that would, in the estimation of Professor Smith, have died of any dangerous acute disease. Such in truth has been the uniform success of my treatment, that it has been generally adopted whenever it has been made known and the credit of having introduced it has been claimed by more than one individual. Though it may be probable it was not derived directly or indirectly from me, it is certain that I am not indebted to any one for the suggestion. In proof of this it may be proper to state, that in the spring of 1833, when scarlatina threatened to be as formidable as it had been the previous autumn, with the view of being useful to the public, I published a lengthy article in the *Lexington Observer and Reporter*, in which my treatment was fully explained. Since that time the same has been repeatedly done in Medical Societies and also in three successive courses of lectures delivered to large classes of students, and now, I have the satisfaction to believe that it is successfully followed by hundreds of physicians in the Valley of the Mississippi.

To impair, if possible, the confidence which should be reposed in ipecacuanha, it was alleged that my success was owing to the comparatively mild character of the cases that occurred in my practice. This was a perfectly gratuitous assumption, as can be easily proved. A certain individual, whose name it would be useless to mention, acquired, at the time, considerable reputation for the treatment of scarlatina; in consequence of which, he was called to treat a number of cases in the very region of country in which I practised.— Though the number submitted to his management was small in comparison to those that fell under my observation, he lost no less than thirteen. This conclusively proves that the scarlatina of Fayette County was not less malignant than the

same disease as it prevailed in this city, for the individual who was reputed more successful than any other physician in Lexington, lost thirteen cases in the very neighborhood in which, it may be said, I was uniformly successful.

In general, I believe it would be correct to say, that my cases did not assume so malignant an aspect as those that occurred in this city. The difference, however, was not in the disease, but in the treatment. That which I pursued effectually prevented the development of malignant symptoms; that adopted by others, did not act, at least, with the same uniformity and to the same extent.

Finding it impossible to explain the success of my treatment by the alleged mildness of the cases, it was then maintained that it presented nothing peculiar, but was such as was generally adopted by other physicians. Than this, no assertion can be more false and unfounded. There were those who vomited occasionally, it is true, but this was generally done, as far as I could learn, with tartar emetic. Between the physiological effects of ipecacuanha and tartar emetic there is a most striking dissimilarity, and, consequently this establishes a wide difference between the treatment of others and that of myself.

It was then contended that the books furnish numerous precedents for the course I pursued in the treatment of scarlatina. Than this no assertion can betray a greater ignorance of what is to be found in books. Dr. Withering, is the only writer who recommends emetics throughout the whole course of the disease, and his notions, pathological as well as practical, are rude and unsatisfactory, not to say unintelligible. Besides, they effected no improvement in practice, for in a few years they were generally condemned and abandoned.

The following quotations will place in a strong light the value which is put upon emetics by those who have written on scarlatina, and will also enable the reader to see how far we have been guided by them in their employment. "On the first coming on of both scarlatina mitis and scarlatina anginosa, *it would seem proper* to administer an emetic of ipecacuanha,

for the purpose of dislodging any mucus that may have accumulated in the throat. In the last more particularly, I am fully convinced it ought never to be omitted; and probably a slight repetition of it, might be the means of preventing any disposition to diarrhœa, which is so apt to arise, from a considerable quantity of acrid matter passing from the fauces, and from thence to the intestines.”—(Thomas’s Practice.) “Vomiting, which has just been recommended in the first species, (*scarlatina simplex*) is still more necessary in the present (*scarlatina anginosa*); for it not only tends to take off the dry burning heat of the skin by relaxing it, but unloads the fauces of the mucous and serous fluids that gorge and disend them.”—(Good’s Study of Medicine.) “Emetics are of the highest importance; and may sometimes be repeated during the course of the disease, should the symptoms be persevering.”—(DeWees’ Practice of Physic. “Si, au commencement de la maladie, il y’a des signes d’embarras gastrique, il sera bien d’administrer un vomitif; on choisira de préférence l’ipecacuanha, parcequ’il a la propriété de provoquer la transpiration. D’ailleurs, il fatiguerait moins l’estomac, si déjà il était disposé à s’enflammer; on doit d’autant moins craindre d’employer ce moyen que souvent il a dissipé l’esquancie.”—(Dict. des Scien. Medical.) After admitting that emetics are highly useful when early employed, it is said, “They have indeed been recommended throughout the whole course of the disease, (Withering.) but general experience goes to show that the commencement of the disease is the only proper period for their employment.”—(Eberle’s Practice of Medicine.) “Emetics, given early, are sometimes attended with advantage, and supposed to render the subsequent disease milder. But of the truth of this opinion, I have not been able to satisfy myself.”—[Burns’s Midwifery.] “The best writers on this disease agree in recommending the exhibition of an emetic in the beginning of the fever; which some have deemed advisable to repeat at intervals of forty-eight, or twenty-four hours, or even at shorter periods, according to the urgency of the symptoms.\*

\* Withering on the Scarlet Fever and Sore Throat.

An emetic is, doubtless, a safe, and perhaps a useful medicine, at the very onset of the disease: but this active employment of them seems to be supported neither by experience nor by principle."—[Bateman's Practical Synopsis of Cutaneous Diseases.) "They may be repeated, provided no evidences of abdominal inflammation exist, at any time during the continuance of the fever, when the respiration or deglutition is much impeded by accumulated phlegm: but since I exhibited purgative medicines from the commencement, I have seen infinitely less of those foul sloughing sores in the throat, and have therefore had comparatively little occasion to prescribe emetics."—(Armstrong on Scarlet Fever.)

From the preceding extracts, and they are taken, without discrimination, from authors as they in succession fell into my hands, the reader will readily perceive what degree of correspondence there is between the views they entertain of the value of emetics and those we have endeavored to inculcate in the preceding pages. Even between Withering and myself there is no similarity of opinion, as will be perceived by consulting the passage extracted from the Synopsis of Bateman. Dr. Armstrong is the only author with whose writings we are acquainted, who seems to have any clear idea of the circumstances which call for the repetition of emetics, though according to his own confession, he made but comparatively little use of them. It is distinctly manifest from the above quotations, that emetics have been, with the exception of Withering, uniformly regarded as mere auxiliaries, and by some of them even as of very doubtful efficacy. We, on the contrary, exhibit them for the purpose of answering a leading indication: an indication that is important and almost invariably present. Instead of giving them to relieve an occasional symptom, we confide in them to prevent and to remove the secondary lesions, the only sources of danger in scarlatina.

We have spoken of vomiting in terms of such warm approval, that it may be thought we rely upon it exclusively. This would be a great mistake, for although we have a confidence in ipecacuanha, that we have not in the united powers of all

other remedies, we have considered it judicious and safe to make such use of certain adjuvants, as we have, by experience found useful. and among these, we may give to

*Cataplasms* a conspicuous place. Of these, we have made much use, and from them, we are persuaded, we have derived much advantage. A common wheat bread poultice, impregnated with mustard or pepper, is the form we have usually employed. This we have applied to the throat externally, of as high a temperature as the sensibility of the skin would tolerate. It should be kept constantly applied, not venturing to omit its use for a single moment. Nor should one poultice be suffered to remain on until it has become cool before another, of a suitable temperature, is substituted in its place. As the throat is a part on which it is difficult to keep a poultice stationary, we always directed it to be enveloped in a piece of book-muslin. This does not in the least obstruct the heat, while it secures the poultice in any position that may be wished. We are thus minute in speaking of the application of the poultice, because we look upon it as an exceedingly valuable auxilliary, and because much of its efficacy will depend upon the manner in which it is used.

When the precautions just suggested are observed, the cataplasm will be found to act powerfully upon the congested mucous lining of the air passages. It will diminish the pain and tension of the throat—lessen the quantity of mucous and serous secretion and diminish the difficulty of breathing. If regularly and constantly applied, it will not be necessary to repeat the ipecacuanha so frequently. When wheezing respiration has returned, we have often seen it removed in the course of a few minutes by the application of a hot cataplasm. From having breathed with decided difficulty, the patient has in a very little while under the action of a cataplasm, breathed quietly, softly and slowly. So direct, indeed, is its effect on the secretions of the air-passages, that we are often made acquainted with the fact that it has become cool, by the increase in the amount of secretion into the bronchial tubes and consequent alteration in the respiration. If permitted to remain on the part

after it has parted with its heat, it will be certain to prove more prejudicial than useful. For this reason, therefore, the hot cataplasm should not be used, unless it is in the power of the patient to command the most assiduous nursing—unless he can have it removed, the moment its reduced temperature renders it necessary. This precaution should be rigidly observed, for if cold is suffered to act upon a part that has been for a considerable length of time subjected to as intense heat as it could bear, blood will be determined to the mucous membrane of the air-passages—secretion will be very much increased, and as a necessary consequence, respiration will be very much obstructed. This I have repeatedly seen, and to relieve it, the prompt use of ipecacuanha is required.

*Vesication* has been often resorted to in scarlatina, but experience has satisfied us that moderate counter-irritation, excited in the way we have just suggested, is more safe as well as salutary. The former, however, has been very warmly commended by Willan, Heberden, Rush, Clark, Simms and more recently by Bateman; by others, in terms of doubtful approval and by a third class of writers, it has been spoken of in language of fixed disapprobation. With the latter we are disposed entirely to concur. Prior to 1832, we had repeatedly employed blisters in scarlatina and do not recollect to have seen them do the least good, while we are certain they have been the cause of much mischief.

By Withering it is alledged that blisters are decidedly injurious when the brain is affected, and that they are less advantageous when the inflammation is confined to the fauces, than in other quinsies. Dr. Currie remarks, "I entirely agree with that excellent physician (Withering) in the reprobation of blisters to the neck, from which I never, in a single instance could perceive benefit, and from which I have suspected very detrimental effects." "Blisters," says Dr. Burns, "have also been applied to the throat, but I really cannot say decidedly, that they do good, and they add greatly to the irritation of the child. In bad cases, there is risk of their being followed by mortification of the part." In the *Bulletin General de Thera-*

*peutique*, it is said by Dr. Sabatier, a very recent writer, that we should be very reserved in the employment of external revulsives in this disease, especially when it has become adynamic in its character, as gangrene is very apt to attack the parts to which they are applied. In cases, moreover, in which it may appear necessary to produce active revulsion, on some point of the periphery, care should be taken not to suffer sinapisms to remain on too long or blisters to draw too much. Blisters have been applied to the neck in cases of very intense angina and the only effect they have had has been to exasperate the cutaneous inflammation, without producing any abatement of the inflammation of the throat. This remedy should, therefore, be abandoned."

We have adduced the above quotations in order to place in its proper light, the practice of those routine physicians who still confide and persevere in the use of blisters in scarlatina. While we condemn vesication, not only as useless but dangerous, we must be permitted to remark that whenever scarlatina has prevailed to such an extent, as to be an object of interest, and to cause physicians to interchange opinions on the subject, we have generally found that vesication was regarded as rather a valuable adjuvant, and at this we have been the more surprised, as we have not had pointed out to us a single good effect of which they are usually productive, and no other reason given for their employment, than that they are recommended by certain authors. This, in the absence of experience, is doubtless a guide not to be despised; but, otherwise, we never suffer praise, whatever may be its source, to influence our conduct further than it corresponds with and is sustained by observation. On this ground, therefore, we condemn vesication and in addition to the evils hinted at in the above quotations we should mention that we have seen it produce erysipelas in three cases during the same epidemic. We had so often seen the poultice produce all the good effects that could be looked for from counter-irritation, that we invariably, when possible, relied on it, but for reasons which it would be needless to enumerate, we were in-

duced, in three cases, to resort to vesication. In every one of these instances, extensive erysipelas of the neck, face and scalp resulted. These were the only cases in which it was employed and in no others did we observe erysipelas, so that we may safely conclude that blistering was the cause of it. Nor was the complication thus superinduced one of trivial importance: in all three it produced symptoms so very alarming, that we encountered much difficulty in counteracting them. Since 1832, the year in which the effect of vesication just referred to was observed, we have not had recourse to it and since that time we have not seen erysipelas complicate scarlatina. From this and the other considerations alluded to we would, therefore, say with M. Sabatier, "*Ce moyen doit donc être abandonné.*"

*Cold Affusion.* It is of the utmost importance to pay attention to the temperature of the surface. This is very various. Sometimes it is higher all over the body than the natural temperature;—sometimes the heat is very irregularly distributed, being in some parts accumulated to a greater degree and in others, at the same time, as low or lower than in ordinary health: To these dissimilar and even opposite circumstances, it is manifest that to no remedy as powerful, sudden and uniform in its effects as cold washing, can be equally applicable. We must therefore discriminate and in doing this, we cannot follow a better guide than Dr. Currie. He has with sufficient clearness indicated the circumstances in which cold washing will be found extremely beneficial.—“When the heat of the body is steadily above the natural temperature,—when there is no sense of chilliness present, and no general or profuse perspiration,” it is safe and salutary.

There is no physical agent more powerful in controlling the functions of the animal economy than the cold affusion, especially when the heat is much augmented. So satisfied was Dr. Currie with its prompt effects in scarlatina that he considered it quite sufficient to extinguish the pyrexia at once. In this he was mistaken and this allegation, I

make not only because the disease is homotonous in its character, but because I have seen no such result follow its application. I have repeatedly employed it, and although I have always seen it reduce very decidedly the heat of the skin, I have never seen it extinguish the febrile symptoms.— Satisfied that it is incompetent to do this, I now expect from it nothing more than a reduction of the temperature of the body and a diminution of the determination of blood to the brain. Nor have I, when used for these purposes, considered it altogether safe or advisable to persevere in it beyond the third or fourth day of the fever. There is then commonly an obvious declension in the febrile excitement, and the fluids having rather an inclination to take a centripetal direction, there would be danger of visceral congestion, should the surface be injudiciously chilled. The same circumspection is necessary in regard to the feeble and delicate. In those of vigorous constitution the reactional power of the system against the first impression of cold washing is very great, and in such persons it may be used without apprehension; but in those of an opposite character, it is very slight, and then there is great danger of a reflux of the fluids from the surface to the internal organs. Congestion is then almost certain to result.

As a general rule, it will be found safe to limit the application of cold water to the head. This will be the more necessary when the fever has already existed for several days without sensible abatement. There is then, in all probability, considerable congestion of the bronchial mucous membrane and should that be the case, the extensive application of cold washing would almost certainly exasperate it. Under such circumstances it is probable that to abstain from it altogether would be more judicious and less hazardous.

The puerperal state is often met with in conjunction with scarlatina and when that happens, congestion of the mucous membrane of the bronchi occurs earlier and is more intense than in ordinary circumstances. Bronchial congestion is then more to be feared than in other conditions of the system, for it is strongly disposed to associate itself with *pneumonia*,

which runs much more rapidly into suppuration than when it occurs under common circumstances. In such cases, therefore, if cold washing is used at all, it should be used early and before bronchial congestion is developed. If it has already occurred, it would probably be better to dispense with it altogether, but if ventured on at all, it cannot be done with too much circumspection.

When the heat of the body is rather below or not above the natural temperature, there can be no doubt about the impropriety of the cold effusion—collapse would probably be the result of its use. Much care and discrimination is necessary even when the febrile excitement is irregular. When reaction is imperfect it always results from congestion or inflammation of some internal organ, and to weaken farther the circulation on the surface, would be to augment the violence of those lesions. There is but one case of irregular re-action in which I venture on the use of cold applications and that is when the brain is threatened with, or is already labouring under considerable congestion while the extremities are of a reduced temperature. Cold applied to the former and heat to the latter at the same time, we have seen productive of much benefit. The cold affusion, however, under such circumstances, would be rather hazardous, for the shock it would impart to the system, would probably too much enfeeble the rather languishing dermoid circulation. Cold sponging or fomentations to the forehead and temples, will do much good and will be found all that can be safely ventured on.

*Warm-Bath.* In regulating the temperature of the body, the warm and tepid baths will be found requisite. There is much more danger to be apprehended when the surface is cool or cold than when too hot. The former is a certain indication that internal congestions are formed or forming, while the latter, if considerable and equably diffused is a sure guaranty that the viscera are not endangered in that respect.

Cold applications, when used, are confined to the few first days of the disease, and after they have been persevered in as long as it is believed they will prove safe or advantageous

they may be exchanged for those that are tepid or hot and these should be continued through the whole of the second stage.— This is the common practice of physicians in general, though there are those who commence much earlier the use of hot and tepid applications and confide in them exclusively; and from the statements that have been made, there is much reason to believe reliance should be reposed in them. When febrile reaction is feeble or irregular, the warm-bath may not only be employed at an early period, but cannot easily be dispensed with. It is a remedy of great power—should be diligently used and persevered in so long as there is an unequal distribution of heat. According to Dr. Armstrong, it “should be used about twice in twenty-four hours, for the first four or five days, and then only once in the same time, until there be appearances of recovery.”

When the pulse is small and contracted and the eruption does not come out freely, and there are indications that congestions have formed or are forming, we cannot too speedily put the patient in a bath of a temperature of from  $90^{\circ}$  to  $95^{\circ}$ . After he is removed from the bath and placed in bed, he should be covered comfortably—drink freely of warm diluents and be dry rubbed to encourage perspiration. Should the eruption show a disposition to recede, the warm-bath should be used to recal it to the surface, and also to prevent the debility, which would result from the congestions that would be thus formed.

During the decline of the eruption, when the skin is dry and hot, the tepid bath may be used daily and it will be found not only in a high degree refreshing, but permanently beneficial.

Constant should be the efforts of the physician to keep the heat of the surface from sinking, and he cannot be too frequently or earnestly told, that just in proportion to his inability to do this will he be unable to prevent visceral congestions. During the time, therefore, that intervenes between the administration of the baths, hot applications, of various kinds and under various forms, should be assiduously made to those parts in which the heat appears most deficient, and these will be usually found in the inferior extremities.

*Blood-letting* is a remedy which has been often employed in scarlatina, but we are satisfied that when the treatment has been commenced early and ipecacuanha, hot poultices and refrigerants, have been used properly, there will be little if any need for the general or local detraction of blood. The respiratory passages will thus have been kept comparatively free of obstruction—those visceral congestions, of which it is the cause, will not have taken place and consequently there will be no indication which the loss of blood can fulfil. When, therefore, it is necessary to bleed, we consider it strong presumptive proof, in the generality of cases at least, that the disease has not been properly treated.

It may, however, happen that from circumstances over which the physician could exercise no control, congestion of the lining membrane of the air-passages may have been permitted to take place and consequently congestions also of other organs, which are extremely apt to follow, and then blood-letting will be necessary. It often happens in scarlatina that pneumonia supervenes on the bronchial lesion, and inflammation of this organ is very apt to give rise to cerebral disorder. This is almost certain to be a cause of embarrassment to the physician. When pneumonia produces symptomatic affection of the brain the cerebral symptoms are generally so conspicuous as to mask, in a great measure, those that proceed from the lungs. He may, therefore, have two serious lesions to contend with when he supposes there is only one. A practical knowledge of auscultation and percussion can alone undeceive him. When these arts have made him acquainted with the mischief that is going on in the chest, he will not hesitate in regard to the propriety of drawing blood. Satisfied, however, as he may be of the propriety of the practice, he will nevertheless, detract it with caution. Should the indications of pneumonic and cerebral congestion be observed during the period of the eruption, he will not take away such an amount of blood as would be deeply and too sensibly felt by the system. This might cause its recession and thus be the means of exasperating lesions, which it was intended to remove. In the

majority of cases, it will be found that one or two moderate bleedings is all that can be safely ventured on.

When indications of nervous irritability are observed, though it has been recommended, I am satisfied there is no safety or success to be found in venesection. Prior to 1832, I had several opportunities to witness its effects under such circumstances, and if I am permitted to judge from personal experience, I would say it is a practice which cannot be condemned in terms too strong or decided. Nor are we singular in the opinion thus expressed:—M. Sabatier informs us that in cases characterized by symptoms of nervous irritation, he has seen patients actually expire before the leeches which had been applied had fallen off, and others which expired a short time afterwards. In these cases, the loss of blood instead of abating or removing, invariably aggravated all the nervous symptoms. M. Guersent of the *Hospital des Enfants Malades*, who has had as much and perhaps more experience in the treatment of scarlatina than any other living physician, I have repeatedly heard inveigh in the strongest terms against the detraction of blood under such circumstances.

Experience has fully established the fact that there are certain primitive and intercurrent cerebral nervoses—the treatment of which by blood-letting is uniformly followed by injury:—the convulsions are aggravated and the termination of the disease is precipitated. This is the case in regard to the delirium and convulsions of those who labour under scarlatina, particularly if they are children. While, therefore, the detraction of blood is sometimes useful, when employed early or even in the course of the disease, when we have to contend with an intense angina, or when we desire to moderate a too violent febrile reaction, or remove congestion of any of the great viscera; but it should never be resorted to, after indications of nervous irritation have become apparent.

*Gargles* are very commonly used to remove the viscid and offensive matter that accumulates in the throat and which is sometimes a considerable obstacle to the free introduction of air into the lungs. An endless variety of them have been recom,

mended, but we look upon the whole of them as either useless or prejudicial. Emesis, excited as we have advised, will effectually clear the fauces and throat and enable us to dispense with them entirely. Besides removing any matter that may encumber the throat, vomiting relieves pain, cools and refreshes the fauces and throat, with a promptitude and certainty which it would be vain to look for from any gargle with which we are acquainted. For the last six years we have not directed a single gargle to be used, and now we are satisfied they may be dispensed with not only without inconvenience, but with positive advantage, and if any local application is made, we believe with the late Dr. Mackintosh that the "inhalation of the vapour of warm water will be found to ease the throat more than any gargle."

*Purgatives* have been much employed and praised in the treatment of scarlatina, ever since the first publication of Hamilton's work on "*Purgative Medicines*." These, Hamilton considered so very beneficial, as to suppose them capable of superseding the use of emetics. Truly, a sufficiently extravagant eulogy. Armstrong also speaks warmly in their commendation and confides much in the free use of calomel in particular. Indeed authors in general are rather partial to purgatives and under certain circumstances they are no doubt useful, but their value, I am well satisfied, has been much exaggerated.

In the commencement of scarlatina, the bowels are commonly sluggish if not torpid, and then an active cathartic will prove very beneficial. We have already said that the free use of ipecacuanha should be resorted to early and therefore, the physician may be in some doubt, which should be administered first. This is not a point of a great deal of importance but perhaps there may be some advantage in premising the use of ipecacuanha with a cathartic. If the bowels are acted on freely before vomiting is excited, there will afterwards be little inducement to repeat the purgative, as generally sufficient ipecacuanha will pass through the stomach to keep the bowels in a soluble state and that is all that is requisite. As yet there are no deranged secretions to correct—no visceral

disease to remove, and consequently there can be no strong motive to enforce the repeated use of cathartics. Moreover, the indiscreet exhibition of them may do actual harm, if the second or eruptive stage has not commenced or is about setting in. Their effect is to give a centripetal direction to the fluids, and if they recoil from the surface with too much force and rapidity the eruption will be feeble or incomplete, and visceral congestions will be formed.

Should congestion of the lungs have already taken place before the case is seen, there will be also, in all probability, congestion of the brain, liver, and perhaps of other parts, to contend with. In such cases purgation is indispensable. The combination of cathartic medicines may be sometimes varied with advantage, so as to suit particular indications. Thus if the lungs or brain be in danger from congestion, calomel combined with jalap or some other article, calculated to excite the exhalents of the bowels, should be administered as often as may be indicated. When, however, the liver is the organ that is in a state of congestion, such medicines as render the stools liquid should be avoided, while we act upon the liver and bowels with such as produce consistent evacuations. Of these calomel, aloes and rhubarb are the most efficient.

Though we admit cathartics to be necessary to remove congestions, when formed in the organs just named, we maintain their energetic employment is never called for when the disease has been properly treated from the beginning. The remedies upon which we place reliance, will certainly prevent the formation of the secondary lesions just referred to, and if we succeed in that, we shall have little use for active cathartic medicines in the treatment of scarlatina. As has been already remarked, sufficient ipecacuanha will pass through the stomach to keep the bowels in a soluble state and this is all that will prove beneficial, until we have some secondary lesion to contend with. The active purging, therefore, recommended by Hamilton, Armstrong and others, is useless and in many instances, highly prejudicial. The bowels are much disposed to congestion in this disease, and if improperly irritated its

production will be hurried and much injury will be thus produced.

The desire prevalent with many physicians, particularly those who practice on the principles of Dr. Cooke, to persevere in the use of cathartics, and especially calomel, until healthy alvine evacuations are produced, though rational in acute diseases is neither rational or practicable in many cases of scarlatina. We have very often seen patients recover under alvine evacuations, by no means satisfactory in appearance, and which, I much suspect, would have terminated otherwise, had we indiscreetly determined to reform them by the repeated use of cathartics. This practice we would the more earnestly denounce, because we know physicians who look upon the rectification of the chylopoietic organs and the liver particularly, as constituting the treatment of scarlatina, and this they undertake to do by the persevering repetition of purgatives, and although the results of their practice are as unsatisfactory as those of any treatment with which we are acquainted or of which we have heard, they still continue, with a stupid infatuation, for which it is difficult to account, to repose in it the most unwavering confidence.